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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/852,002 | 05/10/2001 | Soo-Han Park | 1349.1024 | 4122 |

21171 7590 03/26/2004

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EXAMINER

CHU, KIM KWOK

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2653

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/852,002

Applicant(s)

PARK, SOO-HAN

Examiner

Kim-Kwok CHU

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Pre-Amendment filed on 2/4/04 (paper 4).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 13, 17-19, 28 and 32 is/are rejected.
- 7) ☒ Claim(s) 5-12, 14-16, 20-27 and 29-31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2,3 & 5</u> . | 6) <input type="checkbox"/> Other: _____ |

Specification

1. The disclosure is objected to because of the following informalities:

(a) in the Preliminary Amendment filed on 2/4/04, all pages are not numbered;

(b) in the Preliminary Amendment filed on 2/4/04, in claim 17, line 22 is printed on a blank page;

(c) in the specification, on pages 12 and 13, equations 4 and 5 are the same. For example, the tracking error signal as in equation 5 is equal to the focus error signal as in equation 4.

Appropriate correction is required.

Claim Objection

2. Claim 10 objected to because of the following informalities:

(a) in claim 10, line 4, the equation "Tracking error = $(A+C) - (B+D)$ " should be corrected because claim 9 lists the same equation but labels it as "Focus error"; and

(b) similarly, in claim 25, line 3, the equation "Tracking error = $(A+C) - (B+D)$ " should be corrected because claim 24 lists the same equation but labels it as "Focus error".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless --
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.*

4. Claims 1 and 2 are rejected under 35 U.S.C. § 102(e) as being anticipated by Sugiura et al. (U.S. Patent 6,185,176).

Sugiura teaches an apparatus for recording and/or reproducing data on and/or from various types of optical disks having all the elements and means as cited in claims 1 and 2.

For example, Sugiura teaches the following:

(a) as in claim 1, a first laser diode LD1 emitting a first laser beam (Figs. 13 and 14);

(b) as in claim 1, a second laser diode LD2 emitting a second laser beam (Figs. 13 and 14);

(c) as in claim 1, a diffraction grating 50 splitting the first and the second laser beams into a main ray and sub rays (Figs. 13 and 14; column 2, lines 32-50);

(d) as in claim 1, a photo-detector PD1 having at least a first detecting portion for receiving the main ray of the first

laser beam LD1 and a second detecting portion PD2 which is positioned at a different location from the first detecting portion PD1, for receiving the main ray of the second laser beam LD2 wherein the first and the second laser diodes are formed in one package (Figs.13 and 14; substrate 10 is a common substrate for LD1, LD2, PD1 and PD2); and

(e) as in claim 2, the photo-detector is a single unit on which both the first and the second detecting portions are formed (Figs.13 and 14; substrate 10 is a common substrate for LD1, LD2, PD1 and PD2).

5. Claims 3, 18 and 28 are rejected under 35 U.S.C. § 102(e) as being anticipated by Ohyama (U.S. Patent 6,366,548).

Ohyama teaches a compatible disk player having all the elements and means as cited in claim 3. For example, Ohyama teaches the following:

(a) as in claim 3, a first laser diode 8 emitting a first laser beam to a first optical disk (Figs. 4A and 4B; column 7, lines 56-67);

(b) as in claim 3, a second laser diode 9 emitting a second laser beam to a second optical disc (Figs. 4A and 4B; column 7, lines 56-67);

(c) as in claim 3, a diffraction grating 12 selectively splitting the first and the second laser beams into three rays

depending on which optical disk is to be accessed, wherein the three rays comprise a main ray and two sub-rays (Figs. 5A and 5B; column 8, lines 35-64);

(d) as in claim 3, a photo-detector 3a, 3b, 4a, 4b selectively receiving the three rays of the first laser beam 8 and the three rays of the second laser beam 9 at different detecting portions for data recording and/or reproduction and error detection and compensation (Figs. 5A and 5B; column 8, lines 35-64); and

(e) as in claim 3, the detecting portions comprise a central detecting portion and two peripheral detecting portions (Fig. 4; detecting portions such as 4a has three regions).

6. Method claim 18 is drawn to the method of using the corresponding apparatus claimed in claim 3. Therefore method claim 18 corresponds to apparatus claim 3 and is rejected for the same reasons of anticipation as used above.

7. Method claim 28 is drawn to the method of using the corresponding apparatus claimed in claim 3. Therefore method claim 18 corresponds to apparatus claim 3 and is rejected for the same reasons of anticipation as used above.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4, 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohyama (U.S. Patent 6,366,548) in view of Noda et al. (U.S. Patent 5,153,863).

Ohyama teaches a compatible disk player very similar to that of the present invention. However, Ohyama does not teach the following:

(a) as in claim 4, the photodetector receives the main ray of the first laser beam on the central detecting portion to determine a focus error;

(b) as in claim 4, the main ray of the first laser beam is used to record and/or reproduce the data on/from the first optical disk; and

(c) as in claim 4, the photodetector receives the sub-rays of the first laser beam on the peripheral detecting portions to determine a tracking error.

Noda teaches an optical pickup having the following features:

(a) the photodetector receives the main ray of the first laser beam on the central detecting portion 14A-14D to determine a focus error VFO (Figs. 4 and 5; column 5, lines 14-20);

(b) the main ray of the first laser beam is used to record and/or reproduce the data on/from the first optical disk (Figs. 4 and 5; column 2, lines 14-16); and

(c) the photodetector receives the sub-rays of the first laser beam on the peripheral detecting portions 14E and 14F to determine a tracking error VTR (Figs. 4 and 5; column 5, lines 14-20).

There are various ways to lay out photodetector elements in order to extract detected signals. For example, Ohyama's photodetecting elements are configured differently than Applicant's. However, a photodetector configuration of six photodetecting elements such as Noda's has an advantage of extracting detected signals with simple arithmetic operations.

Hence, to receive all components of light rays in either first or second beams by Ohyama's optical pickup, it would have

been obvious to one of ordinary skill in the art to replace Ohyama's photodetector elements with photodetector elements such as Noda's, because Noda's photodetector arrangement has a standardized electronic circuit to obtained recorded signals with its servo components at the same time.

10. Claim 13 has limitations similar to those treated in the above rejection, and is met by the references as discussed above. Claim 13 however also recites the following limitations which are taught by the prior art of Ohyama in view of Noda. For example, Ohyama teaches the following:

(a) as in claim 13, a beam splitter 6 selectively reflecting the first laser beam toward the first optical disk and the second laser beam toward the second optical disk (Fig. 3); and

(b) as in claim 13, an objective lens 11 selectively focusing the first laser beam on a recording surface of the first optical disk and the second laser beam on a recording surface of the second optical disk (Fig. 3).

In addition, Noda teaches the following:

(a) the photo-detector is a six-split photo-detector comprising four cells on a central detecting portion and two cells on peripheral detecting portions (Figs. 4 and 5).

11. Methods claims 19 and 29 are drawn to the method of using the corresponding apparatus claimed in claim 4. Therefore method claims 19 and 29 correspond to apparatus claim 4 and are rejected for the same reasons of obviousness as used above.

12. Claims 17 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiyama et al. (U.S. Patent 6,552,990) in view of Noda et al. (U.S. Patent 5,153,863).

Kajiyama teaches a compatible disk player very similar to that of the present invention. For example, Kajiyama teaches the following:

(a) as in claim 17, a laser beam source 1 comprising a first laser diode 1a and a second laser diode 1b (Fig. 2; column 8, lines 18-23);

(b) as in claim 17, the first laser diode 1a emits a first laser beam of a first wavelength for recording and/or reproducing data on/from a first optical disk 9 comprising a first recording density (Fig. 2; column 8, lines 18-23);

(c) as in claim 17, the second laser diode 1b emits a second laser beam of a second wavelength for recording and/or reproducing the data on/from a second optical disk 99 comprising a second recording density (Fig. 2; column 8, lines 18-23);

(d) as in claim 17, a diffraction grating 5 selectively splitting the first and the second laser beams into a main ray and two sub-rays depending on which optical disk is to be accessed (Fig. 20);

(e) as in claim 17, the diffraction grating 5 is movable between a first position and a second position in the direction of the optical axis based upon which optical disk is to be accessed (Fig. 2; column 7, lines 55 and 56);

(f) as in claim 17, a beam splitter 4 selectively reflecting the first laser beam toward the first optical disk and the second laser beam toward the second optical disk;

(g) as in claim 17, an annular cover lens 5 selectively adjusting a size of the first laser beam on the first optical disk and the second laser beam on the second optical disk (Fig. 2; column 9, lines 21-32);

(h) as in claim 17, an objective lens 7 selectively focusing the first laser beam on a recording surface of the first optical disk and the second laser beam on a recording surface of the second optical disk (Fig. 2); and

(i) as in claim 17, a photo-detector 8 selectively receives the first laser beam to determine a focus error and tracking error (Fig. 2);

(j) as in claim 17, the photodetector 8 receives the first laser beam to record and/or to reproduce the data on from the first optical disk (Fig. 2);

(k) as in claim 17, the photodetector 8 receives the second laser beam from the second optical disk (Fig. 2); and

(l) as in claim 17, the photo-detector 8 receives the second laser beam to determine the focus error and the tracking error on the second optical disk (Fig. 2).

However, Ohyama does not teach the following:

(a) as in claim 17, the photo-detector comprises a central detecting portion and two peripheral detecting portions;

(b) as in claim 17, the photo-detector selectively receives the main ray of the first laser beam on the central detecting portion to determine a focus error and to record and/or reproduce the data on/from the first optical disk and receives the sub-rays of the first laser beam on the peripheral detecting portions to determine a tracking error, and

(c) as in claim 17, the photo-detector receives the main ray of the second laser beam on the peripheral detecting portions to record and/or reproduce the data on/from the second optical disk and receives one of the two sub-rays on the central detecting portion to determine the focus error and the tracking error on the second optical disk.

Noda teaches an optical pickup having the following features:

(a) the photodetector receives the main ray of the first laser beam on the central detecting portion 14A-14D to determine a focus error VFO and to record and/or reproduce the data on/from the first optical disk (Figs. 4 and 5; column 5, lines 14-20);

(b) the photodetector receives the sub-rays of the first laser beam on the peripheral detecting portions 14E and 14F to determine a tracking error VTR (Figs. 4 and 5; column 5, lines 14-20);

(c) the photodetector receives the main ray of the laser beam on one of the peripheral detecting portions to record and/or reproduce the data on/from the second optical disk (Figs. 4 and 5, column 5, lines 27-31); and

(d) the photodetector receives one of the two sub-rays on the central detecting portion to determine a focus error and a tracking error on the second optical disk, wherein the central detecting portion comprises cells 14A, 14B, 14C, and 14D, and the peripheral detecting portions comprise cells 14E and 14F (Figs. 4 and 5; column 5, lines 14-20).

There are various ways to lay out photodetector elements in order to extract detected signals. For example, Kajiyama's photodetecting elements are configured differently than

Applicant's. However, a photodetector configuration such as Noda's has an advantage of extracting detected signals with simple arithmetic operations. Hence, to receive all components of light rays in either first or second beams by Kajiyama's optical pickup, it would have been obvious to one of ordinary skill in the art to replace Kajiyama's photodetector elements with photodetector elements such as Noda's, because Noda's photodetector arrangement uses a standardized electronic circuit to obtain recorded signals with its servo components at the same time.

13. Method claim 32 is drawn to the method of using the corresponding apparatus claimed in claim 17. Therefore method claim 32 corresponds to apparatus claim 17 and is rejected for the same reasons of obviousness as used above.

Allowable Subject Matter

14. Claims 5-12, 14-16, 20-27 and 29-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claims 5 and 20, the prior art of record fails to teach or fairly suggest the following features:

(a) the photodetector receives the main ray of the second laser beam on one of the peripheral detecting portions to record and/or reproduce the data on/from the second optical disk, and receives one of the two sub-rays on the central detecting portion to determine a focus error and a tracking error on the second optical disk, wherein the central detecting portion comprises cells A, B, C, and D, and the peripheral detecting portions comprise cells E and F.

As in claims 12 and 27, the prior art of record fails to teach or fairly suggest the following features:

(a) an error occurring due to initial positions of the first laser diode and the second laser diode is compensated for by selectively moving the diffraction grating between a first position and a second position, the first position being such

that the main ray of the first laser beam is incident on the central detecting portion, while the two sub-rays are incident on the peripheral detecting portion, and the second position being such that the main ray of the second laser beam is incident on one of the peripheral detecting portions, while one of the two sub-rays is incident on the central detecting portion.

As in claims 14 and 29, the prior art of record fail to teach or fairly suggest the following features:

(a) the main ray of the first laser beam arranged on an optical axis is detected from the central detecting portion to record and/or reproduce the data on/from the first optical disk, and the main ray of the second laser beam strayed from the optical axis is detected from one of the peripheral detecting portions to record and/or reproduce the data on/from the second optical disk.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kouno (6,404,709) is pertinent because Kouno teaches an optical pickup having two laser sources.

Takahashi et al. (6,195,315) is pertinent because Takahashi teaches an optical pickup having two laser sources.

Hoshino et al. (6,154,433) is pertinent because Hoshino teaches an optical pickup having two laser sources.

Mori et al. (6,181,667) is pertinent because Mori teaches an optical pickup having two laser sources.

Jutte et al. (6,147,956) is pertinent because Jutte teaches an optical pickup having two laser sources.

Kasuga (6,125,091) is pertinent because Kasuga teaches an optical pickup having two laser sources.

17. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks Washington, D.C.
20231 Or faxed to:

(703) 872-9306 (for formal communications intended for
entry. Or:

(703) 746-6909, (for informal or draft communications,
please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park
II, 2021 Crystal Drive, Arlington. VA., Sixth Floor
(Receptionist).

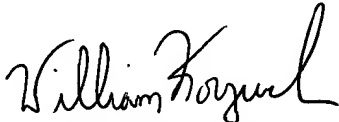
Any inquiry of a general nature or relating to the status
of this application should be directed to the Group
receptionist whose telephone number is (703) 305-4700.

Any inquiry concerning this communication or earlier
communications from the examiner should be directed to Kim CHU
whose telephone number is (703) 305-3032 between 9:30 am to
6:00 pm, Monday to Friday.

kc 3/11/04

Kim-Kwok CHU
Examiner AU2653
March 11, 2004

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